AMENDMENTS TO THE CLAIMS

1. (Original) A Node B apparatus having at least two antennas, for controlling a diversity of data transmitted through the antennas, comprising:

a first spreader for spreading first data and outputting a first spread signal;

a second spreader for spreading second data and outputting a second spread signal;

a first multiplier for multiplying a first weight for a first antenna by the first spread signal output from the first spreader, and outputting a first weighted spread signal;

a second multiplier for multiplying a second weight for a second antenna by the first spread signal output from the first spreader, and outputting a second weighted spread signal;

a third multiplier for multiplying a third weight for the first antenna by the second spread signal output from the second spreader, and outputting a third weighted spread signal;

a fourth multiplier for multiplying a fourth weight for the second antenna by the second spread signal output from the second spreader, and outputting a fourth weighted spread signal;

a first adder for adding the first weighted spread signal to the third weighted spread signal, and transmitting the added signal through the first antenna;

a second adder for adding the second weighted spread signal to the fourth weighted spread signal, and transmitting the added signal through the second antenna; and

a weight generator for determining the first to fourth weights from feedback information received from a UE (User Equipment), and providing the determined first to fourth weights to the first to fourth multipliers, respectively.

2. (Original) The Node B apparatus as claimed in claim 1, wherein the feedback information is FBI (feedback information) of an uplink dedicated physical control channel (UL-DPCCH) received from the UE.

3. (Original) The Node B apparatus as claimed in claim 1, wherein the first data is dedicated physical channel (DPCH) data and the second data is physical downlink shared channel (PDSCH) data.

4. (Currently Amended) An apparatus for controlling a diversity of data transmitted from a Node B in a UE which is on ~~the~~a soft handover process between a first Node B which transmits a downlink shared channel signal and a dedicated channel signal and a second Node B, which transmits the dedicated channel signal, comprising:

a first despreader for despreading a ~~received~~ signal received from the first Node B with a first spreading code and outputting a first despread signal;

a second despreader for despreading the ~~received~~ signal received from the second Node B with a second spreading code and outputting a second despread signal;

a ~~DPCH~~ transmit antenna array (TxAA) weight generator for generating a TxAA weight for applying to the downlink shared channel and the dedicated channel~~a DPCH~~ by receiving the first despread signal and the second despread signal, wherein the TxAA weight is determined more by the first Node B than by the second Node B; and

~~a PDSCH TxAA weight generator for generating a TxAA weight for a PDSCH by receiving the first despread signal and the second despread signal; and~~

a transmitter for generating feedback information including the TxAA weight and transmitting ~~, to the Node Bs,~~ the generated feedback information to the first Node B and the second Node B.~~including the created TxAA weights for the DPCH and the PDSCH in response to a control signal.~~

5. (Original) The apparatus as claimed in claim 4, wherein the first despread signal is a DPCH signal and the second despread signal is a PDSCH signal.

6. (Currently Amended) A method for controlling a transmit antenna array for a PDSCH in a mobile communication system, comprising the steps of:

if a UE is on ~~the~~a soft handover process between a first Node B currently in communication with the UE and a second Node B, transmitting a DL_DPCH established to the UE from the second Node B to the UE in an STTD (Space Time block coded Transmit Diversity) mode or an SA (Single Antenna) mode; and

determining, by the UE, weights by receiving a common pilot channel (CPICH) signal from the first Node B, and transmitting the determined weights as weight information of an uplink dedicated physical channel (UL-DPCH) for the first Node B.

7. (Currently Amended) A method for controlling a transmit antenna array for a PDSCH in a mobile communication system, comprising the steps of:

if a UE is on ~~the~~a soft handover process between a first Node B currently in communication with the UE and a second Node B, transmitting DL-DPCHs from the first and second Node Bs to the UE in an STTD or SA mode;

transmitting a PDSCH established to the UE from the first Node B to the UE in a TxAA mode; and

determining, by the UE, weights by receiving a PDSCH signal from the first Node B, and transmitting the determined weights as weight information of an UL-DPCH for the first Node B.

8. (Original) The method as claimed in claim 7, wherein the first Node B transmits the PDSCH along with a dedicated pilot channel for demodulating the PDSCH signal.

9. (Currently Amended) A method for controlling a transmit antenna array for a PDSCH in a mobile communication system, comprising the steps of:

if a UE is on ~~the~~a soft handover process between a first Node B currently in communication with the UE and a second Node B, transmitting a PDSCH established to the UE from the first Node B to the UE in an STTD or SA mode;

transmitting DL-DPCHs established to the UE from the first and second Node Bs to the UE in a TxAA mode;

determining, by the UE, weights of UL-DPCHs for the first and second Node Bs depending on a phase difference between a first CPICH signal received from the first Node B and a second CPICH signal received from the second Node B, and transmitting the determined weight information as weight information of the UL-DPCHs for the first and second Node Bs.

10. (Currently Amended) A method for controlling a transmit antenna array for a PDSCH in a mobile communication system, comprising the steps of:

if a UE is on ~~the~~a soft handover process between a first Node B currently in communication with the UE and a second Node B, creating, by the UE, feedback information for a PDSCH transmitted from the first Node B; and

transmitting the created feedback information along with an UL-DPCCH established to the first Node B.

11. (Currently Amended) A method for controlling a transmit antenna array for a PDSCH in a mobile communication system, comprising the steps of:

if a UE is on ~~the~~a soft handover process between a first Node B currently in communication with the UE and a second Node B, determining, by the UE, weight information by summing up DL-DPCH signals received from the first and second Node Bs;

comparing, by the UE, pilot signal levels of CPICHs received respectively from the first and second Node Bs, and determining a primary Node B depending on the compared results;

transmitting an ID (Identification) of the determined primary Node B from the UE to other Node Bs except the primary Node B; and

applying, by the primary Node B, a TxAA mode to the UE in the same manner as when the UE is located in a non-SHO (soft handover) region.

12. (Currently Amended) A method for controlling a transmit antenna array for a PDSCH in a mobile communication system, comprising the steps of:

if a UE is on ~~the~~a soft handover process between a first Node B currently in communication with the UE and a second Node B, newly establishing, by the UE, a second UL-DPCCH to the first Node B in addition to a first UL-DPCCH previously established to the first Node B;

transmitting weight information of a DL-DPCH through an FBI (Feedback Information) field of the first UL-DPCCH by the UE; and

transmitting weight information of a PDSCH through an FBI field of the second UL-DPCCH by the UE.

13. (Original) The method as claimed in claim 12, wherein feedback information of the PDSCH is created by measuring a CPICH signal from a Node B transmitting the PDSCH to the UE.

14. (Original) The method as claimed in claim 12, wherein feedback information of the DL-DPCH is information for controlling a closed-loop antenna gain of DL-DPCHs transmitted from respective Node Bs in an active set of the UE, and is created by summing up CPICH signals received from the respective Node Bs.

15. (Original) A method for controlling a transmit antenna array for a PDSCH in a mobile communication system, comprising the steps of:

determining whether a PDSCH/E-DSCH (EnhancedPDSCH) signal is received in a TxAA mode;

upon receipt of the PDSCH/E-DSCH signal, selecting a Node B having a best channel condition, and assigning a weight for the selected Node B;

upon receipt of data from the same Node B on a time-sequence basis, controlling a TxAA feedback information register operation mode;

after controlling the TxAA feedback information register operation mode, additionally creating the PDSCH/E-DSCH depending on result data before the data is received, and feeding back the created PDSCH/E-DSCH; and

switching the operation mode back to the TxAA mode, if receiving the PDSCH/E-DSCH from the Node B is completed.

16. (Original) The method as claimed in claim 15, further comprising the step of, if the received data has a time offset or is not received from the same Node B, additionally creating the PDSCH/E-DSCH using a predetermined offset or result data previously applied to another Node B, and feeding back the created PDSCH/E-DSCH.

17. (Original) The method as claimed in claim 15, further comprising the step of, if the received data has a time offset or is not received from the same Node B, switching the operation mode from the TxAA mode to the STTD or SA mode.

18. (Original) A method for controlling a transmit antenna array for a DPSCH in a mobile communication system, comprising the steps of:

transmitting information on a transmission start point of the PDSCH over a specific channel from a PDSCH serving Node B to a UE, a predetermined number of slots ahead of the transmission start point of the PDSCH;

upon receipt of the specific channel, detecting by the UE the PDSCH transmission start information and creating weights for a PDSCH of the PDSCH serving Node B;

feeding back UL-DPCCH signals to respective Node Bs in an active set depending on received PDSCH and DPCH signals; and

maintaining, by the PDSCH serving Node B, a TxAA mode depending on a UL-DPCCH signal fed back from the UE.

19. (Original) The method as claimed in claim 18, further comprising the step of switching the operation mode to an STTD or SA mode depending on the UL-DPCCH signal fed back from the UE by the Node Bs in the active set, the Node Bs not transmitting the PDSCH and transmitting only DPCH.

20. (Original) The method as claimed in claim 19, further comprising the step of, if transmission of the PDSCH is completed, removing by the UE weights for the PDSCH servicing cell and switching an operation mode of the Node Bs, registered in the active set, operating in the STTD or SA mode, to the TxAA mode.

21. (Original) A method for controlling Node B having at least two antennas and controlling a diversity of data transmitted through the antennas, comprising the steps of:

determining first to fourth weights from feedback information received from a UE;

generating a first spread signal by spreading first data;

generating a second spread signal by spreading second data;

generating a first weighted spread signal by multiplying a first weight for a first antenna by the first spread signal;

generating a second weighted spread signal by multiplying a second weight for a second antenna by the first spread signal;

generating a third weighted spread signal by multiplying a third weight for the first antenna by the second spread signal;

generating a fourth weighted spread signal by multiplying a fourth weight for the second antenna by the second spread signal;

adding the first weighted spread signal to the third weighted spread signal, and transmitting the added signal through the first antenna; and

adding the second weighted spread signal to the fourth weighted spread signal, and transmitting the added signal through the second antenna.

22. (Original) The method as claimed in claim 21, wherein the feedback information is feedback information of an uplink dedicated physical control channel (UL-DPCCH) received from the UE.

23. (Original) The method as claimed in claim 21, wherein the first data is dedicated physical channel (DPCH) data and the second data is physical downlink shared channel (PDSCH) data.

24. (Currently Amended) A UE ~~control method~~ for controlling a diversity of data transmitted from a Node B in a UE which is on ~~the~~a soft handover process between a first Node B which transmits a downlink shared channel signal and a dedicated channel signal and a second Node B which transmits the dedicated channel signal, comprising the steps of:

despreading a signal received from the first Node B with a first spreading code and outputting a first despread signal;

despreading the signal received from the second Node B with a second spreading code and outputting a second despread signal;

~~outputting a first despread signal by despreading a received signal with a first spreading code;~~

~~outputting a second despread signal by despreading the received signal with a second spreading code;~~

generating a TxAA weight for ~~a DPCH by receiving the first despread signal and the second despread signal~~applying to the downlink shared channel and the dedicated channel by receiving the first despread signal and the second despread signal, wherein the TxAA weight is determined more by the first Node B than by the second Node B; and

generating feedback information including the ~~a~~ TxAA weight ~~for a PDSCH by receiving the first despread signal and the second despread signal;~~ and transmitting the generated feedback information to the first Node B and the second Node B.

~~transmitting, to the Node Bs, feedback information including the created TxAA weights for the DPCH and the PDSCH in response to a control signal.~~

25. (Original) The UE control method as claimed in claim 24, wherein the first despread signal is a DPCH signal and the second despread signal is a PDSCH signal.